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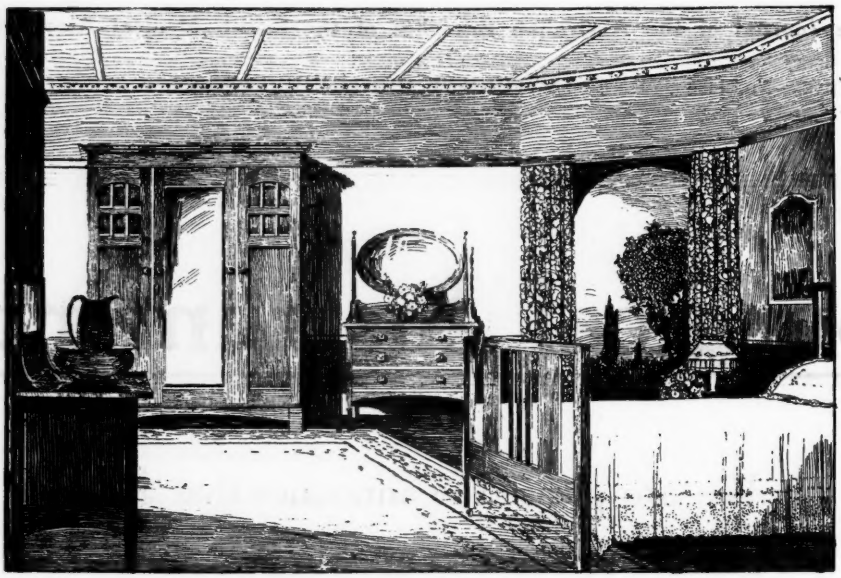

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THE X-RAY EXAMINATION OF THE ABDOMEN FOLLOWING INFLATION OF THE PERITONEAL CAVITY.[1]

By **K. Stuart Cross, M.Sc., M.D.**

Radiologist, No. 11 Australian General Hospital; Lecturer in Radiology, University of Melbourne.

The inflation of the peritoneal cavity with gas, followed by radiological examination, is a procedure that has been widely adopted since the war, amongst those who have written on the subject being Weber,(1) Rautenberg,(2) Goetze,(3) and A. Schmidt(4) in Germany, Stewart and Stein(5) in America, Alessandrini(6) in Italy and Roberts(7) in England.

It is a method of clinical investigation of such obvious utility that I feel no apology is needed in reporting my own recent work in the matter.

Fundamental Principles of the Process.

The method has its greatest value in the examination of the solid organs of and in relation to the abdominal cavity. Ordinarily these organs are obscured by the closely packed coils of intestine or by their close apposition to one another.

By inflating the peritoneal cavity, its capacity is considerably increased by upward displacement of the diaphragm and by stretching of the parietes. The bulk of the gut gravitates to the most dependent portion of the enlarged cavity, thereby uncovering solid organs and other fixed structures of that segment of the abdomen occupying the highest position in any given posture of the patient. Thus the fundamental principle in placing the patient for examination of any particular region is simply that the latter should be uppermost.

Choice of Gas.

Most of the work has been carried out with oxygen and so far I have confined myself to its use. Recently, however, W. C. Alvarez,(8) of America, has described his experiments with carbon dioxide.

The most striking difference between these two gases is that, whereas oxygen takes somewhere between thirty and a hundred hours to absorb, carbon dioxide leaves the abdomen in half an hour. This, however, is rather too rapid, as it usually does not allow time for the necessary plates to be secured. Stewart and Stein, according to a synopsis of their monograph entitled "Pneumo-peritoneum," advertized in the *American Journal of Roentgenology* as in the press, discuss the use of various mixtures of gases.

The slow rate of absorption of oxygen, however, is overcome, as will be seen later, by deflating the patient at the end of the examination; while, as against

[1] Read at a Meeting of the Victorian Branch of the British Medical Association on June 1, 1921.

the use of carbon dioxide, is the case just reported by Alvarez,(9) in which the patient showed alarming symptoms of cyanosis and cardiac failure, though up to this point the radiologist had had apparently no trouble of any kind with his carbon dioxide cases.

Description of the Inflating Apparatus.

The apparatus used and exhibited resembles that described by J. E. H. Roberts in the *British Medical Journal* of November 13, 1920; it has been made to my specifications by Ramsay & Company, of Melbourne. It comprises a cylinder of oxygen connected by rubber tubing to a football bladder, having an inlet and an outlet tube, both controlled by taps. The outlet tube passes to a warming apparatus, consisting of a metal cylinder having a closely wound copper tubular helix in apposition to its inner surface, the central space being occupied by an ordinary filament electric light bulb. The latter has an attached switch, so that the regulation of the temperature of the heater is under direct control.

The oxygen, like any other gas under pressure, undergoes a marked fall in temperature on decompression; it is therefore advisable to warm this expanded gas up to body temperature before passing it into the peritoneal cavity.

From the heater the gas passes along a sufficient length of rubber tubing to a small glass bulb containing a filter of sterilized cotton wool and thence through a terminal rubber tube and metal nozzle to the inflation needle, the latter two being adapted to each other. The needle is of the fine lumbar puncture type with obturator.

The glass bulb, terminal rubber tube and needle are sterilized before use.

Preliminary Preparation of the Patient.

It is advisable to empty the intestinal tract, preferably by castor oil and enemata. Roberts(7) recommends castor oil on two successive evenings, followed on the first occasion by an enema on the following morning. On the day of examination no solid food is taken and no enema is given. An hour before examination 0.01 to 0.015 gramme of morphine is injected.

In the series of cases on which this paper is based, no opiates were administered, as it was desired to study the reaction of the patients, unobscured by sedatives.

Technique of Inflation.

The site of election for perforating the abdominal wall is, in the absence of contra-indications, at a point 2.5 cm. below and to the left of the umbilicus, the patient lying in the horizontal supine position. Here one is guided as to depth by the anterior and posterior layers of the sheath of the rectus, which can be identified readily as the point of the needle reaches and pierces them.

Following the usual antiseptic toilet of the skin in this area, the latter, together with the underlying tissues of the abdominal wall, is anæsthetized. The skin is then nicked with a sharply pointed scalpel and the fine lumbar puncture needle, with obturator, is pushed obliquely through the abdominal wall until the posterior sheath of the rectus is encountered. A further short, controlled push of the needle pierces this latter structure and the point of the needle is felt to slip through into the peritoneal cavity.

The obturator is withdrawn from the needle and the metal nozzle of the terminal tubing inserted in its place.

The bladder, with outlet closed, is then partially filled with oxygen from the cylinder and the cylinder tap shut off. The outlet tap of the bladder is opened and by pressure on the bladder with the palm of the hand the oxygen is slowly expressed through the hot spiral and filter into the peritoneal cavity. If necessary, the process is repeated, the average case taking two or three loosely inflated bladders full of oxygen. Where, however, the abdominal wall is lax, as in multiparous women or patients with ascites after drainage, the quantity accommodated may be, of course, much greater.

The process of inflation is stopped as soon as the patient shows any indications of discomfort. These take the form of slight respiratory embarrassment or of a reflex pain in the right scapular region, apparently due to strain on the attachments of the diaphragm.

The needle is then withdrawn, the puncture retouched with iodine and covered with a wisp of sterile gauze or wool attached by a strip of zinc oxide plaster.

The patient is now ready for examination.

Technique of Examination.

The routine examination is somewhat as follows.

The patient is viewed first without alteration of his horizontal supine position, a general survey being made of the whole abdomen.

The table is then slowly rotated about a transverse axis towards the upright position, attention being concentrated on the diaphragm and the upper surface of the liver. These remain in contact during and after inflation with the patient in the horizontal position, but on rotating through about ten degrees towards the vertical and in the absence of a subdiaphragmatic lesion, there appears a narrow clear zone of gas between the diaphragm and the upper surface of the liver. This appearance eliminates the possible presence of any encysted process in this locality and the patient may be rotated safely further towards the vertical. The screen appearance is not, however, as striking with the patient in this as in the prone position, so that it is advisable, as soon as the clear sub-diaphragmatic zone is demonstrated, to roll the patient over, first on to his right side and then on to his face.

This posture gives a brilliant fluoroscopic picture of the fixed organs of the upper segment of the abdomen, the liver, spleen and kidneys being clearly outlined. The appearance is improved still further, however, by continuing the rotation of the patient towards the vertical, while, for the pelvic organs, rotation is carried out in the opposite sense, the patient passing into the prone Trendelenburg position. With a well inflated abdomen it is not necessary to carry this rotation in either direction through many degrees in order to determine the necessary slide away of the mobile intestines from the area under investigation.

The fixed and semi-fixed organs of the left side, the spleen, kidney, descending colon, are seen best with the patient lying on his right side, the rays passing horizontally from back or front. Usually it is not necessary to screen the patient in this position, plates being taken after the general fluoroscopic examination with the patient prone has been completed.

With the patient lying horizontally on his back a view of the anterior surface of the liver and gall-bladder is obtained with horizontal rays from either side, though, in the absence of adhesions, the liver falls away from the anterior abdominal wall to a considerable extent, so that the gall-bladder is often partly hidden by the spinal column. Adhesions to the abdominal wall are clearly seen, as are tumours, cysts or other irregularities of the hepatic surface.

Turning the patient on to his left side demonstrates strikingly the mobility of the liver under normal conditions, *i.e.*, in the absence of adhesions, etc.. In some of the plates shown it will be seen that the liver has rotated about an antero-posterior axis through seventy or eighty degrees, so that its diaphragmatic surface has become parallel to the spinal column. This is the least comfortable of the horizontal positions, the drag of the liver on its attachments giving rise to the same reflex pain in the right scapular region, though to a less intense degree, as does assumption of the erect attitude.

Because of this reflex pain the patient should never be asked to assume the upright position and for this reason a table that can be rotated with the patient to any desired degree of inclination, is almost a necessity, at least for the comfort of the patient. The patient can be gradually rotated away from the horizontal as required and so, for the examination of any particular region, the optimum position consistent with the patient's comfort can be reached.

Another position of great value in demonstrating and locating retroperitoneal masses has been described recently by L. R. Sante,(10) of St. Louis. Here the patient occupies the prone horizontal position, with supports under pelvis and chest, so that the anterior wall of the distended abdomen rests on the table without compression. In this attitude and with a normal abdomen the gut and liver fall forwards and rest on the anterior abdominal wall, leaving an otherwise empty, gas-filled, pre-vertebral zone, together with an uninterrupted lateral view of the spine, the rays passing horizontally from the X-ray tube. Retroperitoneal tumours, if present, are clearly seen projecting anteriorly into this space, independent of the intra-abdominal organs; in combination with antero-posterior or postero-anterior views, they can be definitely and readily located.

The technique of examination as above described should be regarded as tentative and subject to such modification as further experience may dictate.

Deflation.

At the termination of the examination it is my practice to deflate the abdomen. A little more local anæsthetic may be instilled along the track of the original puncture, following which a fine trochar and cannula are inserted into the peritoneal cavity with the patient in the dorsal decubitus. This is a simple process, as the abdominal wall is tense and the viscera well out of the way. The trochar is then withdrawn, being followed by the comparatively rapid escape of oxygen, the process being assisted in its terminal stages by lateral pressure on the sides of the abdomen. As a general rule the patients girth at the umbilical level can be reduced to within 1.25 cm. of what it was before inflation, the usual increase at full inflation being in the region of 7.5 cm. with a normal abdominal wall.

With this deflation there is a disappearance of discomfort in all positions, except, perhaps, for a slight ache in the right scapular region on sitting or standing. Roberts(7) states that several of his private patients had returned home by train immediately after deflation and had stated that they had experienced no discomfort.

Reaction of the Patient.

I have been fortunate in having been able to keep all my patients under close observation.

The first one we did was not subjected to deflation. He appeared to enjoy thoroughly the whole performance, which he treated as rather a good joke. Further than this, he came along later and, on his own initiative, volunteered for a repetition of the experience, if desired.

The last patient in whom I employed the method, was inflated in my own rooms. He was an officer of high military rank, representing the type of patient most likely to be met with in private practice, and has given me a careful and considered statement of his side of the case.

This patient's girth at the level of the umbilicus at the end of expiration before inflation was 67.5 cm., after inflation 74.4 cm., after deflation 68.75 cm.. He was then driven straight back to Caulfield in the ambulance and immediately after arrival sat up in bed and ate a good tea in perfect comfort. He had been, it should be remarked, a "cot case" for some considerable time. It should be recollected, also, that none of the patients had been given a sedative of any kind, though in ordinary practice it would be advisable, as a rule, as already stated, to administer one before examination.

With regard to the actual process of inflation, he states that the first symptoms of discomfort were felt as a slight sense of dyspnœa, followed by the dull ache in the right shoulder. This was the point at which we ceased inflation. He considers the onset of this pain a good indication of the stage at which to stop inflating and states that, had it not come on when it did, he would have suggested cessation because of his difficulty in breathing.

Thereafter he was comfortable, except when rolled on to his left side, when the right shoulder pain became severe.

The process of deflation he did not mind at all and finally expressed himself as ready "to be done again," were it considered necessary.

I should state, further, that this patient was of a somewhat sensitive and nervous temperatment and was a good type of test case.

I must express my gratitude to Dr. Harold Irving for the masterely way in which he gained the confidence of these patients and their consent to undergo these novel experiences, as also for his whole-hearted

interest in the investigation and his assistance at many of the examinations. The actual inflation and deflation were carried out by him in several of the cases.

At the same time I wish to record my thanks to Lieutenant-Colonel Embling, Officer Commanding No. 11 Australian General Hospital, who was always helpful and interested in the work.

After-Treatment of the Patient.

It is advisable, at the end of deflation, to apply a binder to the abdomen, so as to support the liver until the residual oxygen has been absorbed. I would prefer, I think, that the patient returned home in a taxi in a slightly recumbent position on the right side. In certain cases a day in bed might be well. With the average patient none of these procedures is essential, though all perhaps are conducive to his comfort.

Additional Adjuvant Procedures.

Various adjuvant procedures have been suggested and applied, such as the simultaneous inflation of the stomach or urinary bladder. I have not had the opportunity up to the present of trying these, but hope to do so at a later date. They are designed to facilitate the examination of growths affecting the viscus concerned. The methods are simple and the principles, I think, sound.

Objections and Contra-Indications.

The most obvious objection to the method is that of possible injury in the initial perforation of the abdominal wall. Roberts(7) suggests, as possible dangers in this connexion, puncture of the intestines, puncture of the veins in the omentum and mesentery with consequent embolism or bleeding and, thirdly, infection of the peritoneum.

It appears, however, from a perusal of the literature that these objections are largely theoretical. Roberts(7) had no ill consequences whatever in his series of fifty cases, while Goetze(3) quotes a series of over ninety cases, without even a change of pulse rate. A Schmidt(4) considers the process inoffensive, while Rautenberg(2) and Stewart and Stein(5) write in the same strain. Experiments on rabbits, quoted by the last-named authors, show that in the live rabbit the intestines always recede from a sharp point, though with the dead animal puncture readily occurs.

The possibility of gas embolism seems to be ruled out by the experiments of Dr. Rubin,(11) who injected 350 c.cm. of oxygen into the vein of a dog without the latter, as he expresses it, "turning a hair"!

Then there are the contra-indications, more or less obvious, peculiar to the particular patient. Amongst these may be numbered serious disturbances of circulation or respiration, acute or adhesive peritonitis, etc..

Indications.

The indications are numerous. Goetze(3) gives the following list of conditions in which it gives valuable information:

Ascites at the beginning. It is also a sound procedure, after draining off ascitic fluid, to replace the latter with oxygen and examine radiologically. These patients are already used to the distention and can be examined in all positions with very little discomfort.

Neoplasms of the viscera and abdominal walls.

Various forms of hernia (including diaphragmatic, of which the diagnosis is always difficult).

Enlarged mesenteric lymphatic glands.

Changes in the abdominal aorta.

Caries of the spine and pelvis bones.

Abscess (particularly psoas and perinephric).

Conditions involving a change in the shape of the lower cardiac limits.

Pericholecystitis.

Renal calculus, renal changes.

Splenomegaly.

Pathological conditions of bladder (simultaneous intravesical insufflation).

Growths of the uterus and adnexae.

Pregnancy, etc..

Demonstration of Lantern Slides and Plates.

The plates and slides shown were designed to illustrate the scope of the method and the exceptional clearness with which all the solid organs can be demonstrated. The spleen is seen with absolute clearness, the kidneys throughout their whole extent. Every contour of the liver can be examined, while the normal gall-bladder in certain views is seen distinctly. The phreno-colic ligament stands out clearly in all plates of the left side of the abdomen. The walls of the colon can be examined in detail and every piece of contained fæces can be clearly seen. Each individual slip of origin of the psoas muscle is distinct, as are also the cruræ of the diaphragm, whilst, in the cases where the inflation is extensive enough to cause the mobile small gut to fall below the level of the spine in the lateral horizontal decubitus, the structure of the vertebral column is seen in great detail.

There is no portion of the abdominal cavity not amenable to examination.

No effort has been made to present pathological material, but it is hoped that at a later date I may be permitted to submit to a meeting of the Branch plates showing the application of the method to the elucidation of various pathological conditions.

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(8) Alvarez, W. C.: *Calif. State Journal of Medicine*, February, 1920.

(9) Alvarez, W. C.: *Amer. Journ. of Roent.*, March, 1921, p. 137.

(10) Sante, L. R.: *Amer. Journ. of Roent.*, March, 1921, p. 129.

(11) Rubin, I. C.: *Amer. Journ. of Roent.*, March, 1921, p. 135.

NOTE.—Owing to the difficulties inherent in making satisfactory half-tone reproductions of X-ray plates or prints, it is reluctantly decided not to attempt to illustrate this article. It is necessary to see the original plates or slides to appreciate at their true value the results to be obtained by the method of examination which has been the subject of this paper.

Reports of Cases.

ACUTE GENERAL PERITONITIS.

By **W. R. Groves, M.D.,**
Honorary Surgeon, Kyneton Hospital, Kyneton, Victoria.

I have two cases of peritonitis to report in which recovery ensued after treatment with morphine and the avoidance of all effort to produce bowel action.

The first patient was a young woman brought to hospital in a state verging on collapse, suffering from general peritonitis secondary to appendicitis, which had set in six days previously. Operation had been refused in spite of the repeated urgings of her medical attendant (Dr. Nesbitt, of Lancefield), and even after a consultation with Dr. Murdoch, of Romsey, operation had been declined, though urgently recommended. When I saw her the patient looked extremely ill and her pulse was barely palpable. The abdomen was tensely and uniformly distended and very tender and no flatus was being passed. Strange to say, there had been no vomiting since early in the attack and on only two occasions did it occur during the subsequent course of the case. As the patient's condition showed no material improvement with rest and warmth, it was decided, a few hours later, to open the abdomen under local anæsthesia (novocain) with narcosis (morphine and hyoscine). Pus with a slight greenish tinge and "oniony" odour suggestive of *Bacillus pyocyaneus* infection and the strong fæcal odour of *Bacillus coli* infection, flowed freely upon opening the peritoneum. The distended intestines offered such resistance that all but the gentlest manipulations were very painful. On account of this and the patient's general condition only a hurried and limited search was permissible and the source of infection was not ascertained. The pelvis was drained, the wound otherwise closed and the patient returned to bed as quickly as possible, warmth and salines being administered.

In the light of some slight previous experience, the result of an article by Major Basil Hughes, D.S.O., which appeared in the *British Medical Journal*, September 20, 1919, I decided, whilst avoiding any attempt to open the bowels, to keep the patient under the influence of morphine with the idea of immobilizing the inflamed peritoneum and saving the patient the suffering which is experienced in these cases. Accordingly, morphine (0.0075 grm.) with atropine (0.00027 grm.) and strychnine (0.0016 grm.) was administered hypodermically whenever the patient showed signs of restlessness, which was about every four hours. This was continued for five days and then less frequently for another week. Salines were given, but not pushed, as no fluid was being lost by vomiting and some water was taken by mouth. No nourishment was allowed. After operation the pulse improved in volume and the patient's appearance became less urgent. The tension of the abdomen became even more acute and even under the morphine the gentlest palpation was painful. The breathing became hurried, so that I was sorely tempted to try and do something to relieve the distension. On one occasion only, the third day after operation, a little flatus was passed. At this time Mr. H. B. Devine was summoned from Melbourne to see the patient. Although the patient's condition was about as grave as could be, there were some points in her favour which inclined us to the view that she was doing as well as could be expected and that the treatment should be continued. Major Hughes in his article states that under this treatment the bowels usually act naturally about the fourth or fifth day after operation. Late on the fourth day in this case I thought there was slightly less tenderness and less bulging of the epigastric region, though there had been no further passage of flatus. There was no doubt about this next morning, and later in the day, that is, the fifth day after operation, the bowels commenced to act naturally and freely and they continued to do so thereafter, in spite of the fact that morphine was still administered whenever the patient required rest. Not until the 16th day after operation was an aperient given or any attempt made to move the bowels. From the time the bowels first acted it was interesting to watch the peritonitis resolving. First the upper part of the abdomen and sides cleared up gradually and the last region to resolve was a circumscribed area of resistance and tenderness behind the right rectus about the level of the umbilicus, which was no doubt the position of the appendix. Though the danger from the peritonitis had passed, the patient's condition continued to give me anxiety till a right empyema manifested itself. This was opened under local anæsthesia, fæcal smelling pus being evacuated. The empyema cleared up readily and the patient is now getting up, though the abdominal wound is still draining and there is a pyuria apparently due to a pyelitis.

Whatever the ultimate result of this case, the fact remains that a condition of acute diffuse peritonitis terminated in recovery in spite of, if not in consequence of, the repeated administration of morphine for days. Not only this, but there is the important point that the patient drowsed more or less comfortably through days of illness that are otherwise days of the greatest distress and suffering.

Some months ago I had another case of acute general peritonitis in which recovery took place under the same treatment. In this case, however, there was persistent vomiting, the vomit being for four days of a dark coffee ground character, but not fæcal. Here also the source of infection was not removed.

A woman of 56 years of age was, when I saw her, in the third day of what was taken to be acute appendicitis. At operation under general anæsthesia a generalizing peritonitis was found and although I was able to make a fairly thorough search of the abdomen, except in its upper regions which appeared unaffected, the source of infection was not found. The appendix and tubes were not at fault. Possibly a small perforated diverticulum was the cause of the peritonitis, as the intensity of the inflammation appeared to be most marked towards the left iliac fossa. Drainage was provided for and salines, abstention from food or any effort to produce bowel action and morphine, repeated when necessary, comprised the after treatment. The stomach was washed out once. In this case the peritonitis at the time of operation was not general, but it became so during the next day or so, the distension and tenderness becoming general with severe vomiting as before mentioned. No doubt the searching about for a focus during operation helped to generalize the infection.

I have had no other opportunity to employ this method of treatment, but in cases of acute appendicitis I have not hesitated in the after treatment to give morphine for any undue pain, taking care in the severer cases to avoid bowel peristalsis for some days. Of course, in the simpler conditions in which early operation is carried out, an aperient may be given, but there is seldom any necessity for it. I remember that the late Dr. Duncan of this town used to prefer that no enema nor aperient for at least five days should be given to any patient after an abdominal operation. I cannot say that the two patients whose cases are recorded above, would not have recovered without the morphine, but the fact that they did recover and that the bowels acted naturally in spite of it, is rather a blow to the view which I believe is commonly held in regard to the effect of morphine in these cases. I used to look upon the condition of ileus in peritoneal infection as one to be dreaded and combated by all possible means; whereas it appears that it should be welcomed (except in so far as it is a sign of a very serious condition) as a means of defence rather to be encouraged than otherwise. We now-a-days have great confidence in the defensive powers of the normal peritoneum where we formerly had none, and it looks as though we might learn to extend that confidence to it when inflamed and, relying on its wonderful defensive powers, come back to the elementary principle of putting the inflamed part at rest, assisting Nature to fight its own battle, which it apparently will do with success if the infection be not overwhelming.

I have described the patient under morphine "drowsing" through her painful and critical illness. What a contrast she presented to the patient treated with efforts to overcome the distension! I shall never forget a few years ago treating on the latter lines a young boy suffering from general peritonitis secondary to appendicitis. Being imbued with the idea that his only chance of recovery lay in defeating

the ileus and keeping him going with saline solution after the usual operative measures, including removal of the appendix, I employed every means I could think of to carry out these objects. He was one of the pluckiest little patients I have ever known and what he went through I will never forget. On top of his distressing pain and vomiting there were the subcutaneous injections of saline solution for continuous rectal administration was not tolerated for long. These were painful enough, though they would have been little noticed had he been allowed morphine. But no, this relief could not be vouchsafed him because of the fear of further paralysing the bowel. Then the measures to induce the bowels to act. One had a notion that if only the bowels could be moved, all would be well and yet I remember one case at any rate where, in spite of free bowel actions, the distension and peritonitis were not in the least ameliorated—a fatal issue being the outcome. Enemata, wash-outs, pituitrin, eserine, calomel, castor oil, etc., were all administered, only, as I see it now, to do more harm than good and add still further to the little chap's suffering. With one thing and another, there was literally no rest for him and death ensued.

When later I came across Major Hughes's article I determined never again to treat a peritonitis on the old lines until I had given the method he advocated a fair trial. I am well aware that two cases are far from being such a trial, but I do not get many opportunities of treating general peritonitis and I give my experience of this treatment in the hope of encouraging others, who have better opportunities, of trying it.

In his article Major Hughes states that of 21 consecutive patients with acute diffuse peritonitis treated by his method only one died; the fatal case was one of intestinal obstruction with gangrene. He removes the source of infection, if possible.

As to the manner in which the morphine acts in these cases, the splinting effect on the inflamed peritoneal surfaces and the shielding of the patient's sensorium from pain and suffering have been emphasized. Crile claims further ways in which it helps these cases. I quote the following from an editorial in *The Therapeutic Gazette*, September 15, 1916, entitled "Opium and Peritonitis":

> The object of this editorial, however, is to deal with an interesting phase of this subject which is well worthy of our attention. . . . Crile now comes forward with a strong endorsement of opium, stating that the common cause of death in peritonitis, as in any acute infection, is exhaustion, which exhaustion is due to the expenditure of energy in combating the infection; the destructive effects of the resulting acid products; the diminished intake of food and insufficient sleep. He emphasizes the latter factor since in peritonitis the plan is severe and sleep is rare and fitful. He therefore advocates for the purpose of diminishing the absorption of poisons and affording drainage, operating under nitrous oxide and local anæsthesia, placing the patient in the Fowler position and giving physiological rest to the intestine. In order that this latter may be obtained, he advises the full use of opium and thoroughly endorses Alvazo Clark's original statement that the dose should be measured by its effect upon the respiratory rate and not in grains. . . . He asserts that laboratory findings have demonstrated that the opium protects the brain, the adrenals and the liver against the damaging effect of toxin and he publishes a plate showing micro-photographs of these organs exposed to infection with and without opium. The use of opium also diminishes the need of food and diminishes metabolism.

This editorial is evidently based upon an article by Crile in the *Americal Journal of Obstetrics*, February, 1915, to which the reader may be referred for further details.

It is some seven months since the above was written and there are one of two points of interest to add.

In the first case reported recovery was complete and I have recently heard from the patient that she has quite regaind her health and strength. An interesting condition developed in connexion with the pyelitis which was present when the report was written. A mixture of urotropine with acid sodium phosphate was being taken when the patient lost her appetite and appeared not to be as well as she should have been. There were no symptoms pointing in any definite direction, but there was evidently something going amiss. The amount of pus in the urine was being watched, but no test for albumin had been made since the pyuria appeared, when there was only a trace present. On testing now I was astonished to find the that urine became nearly solid on being boiled. There was no blood present and no casts to be readily found. Suspecting the urotropine to be the cause, the mixture was replaced by alkalis and within three days all but a trace of albumin had gone. Renal irritability with hæmaturia occurs fairly frequently when urotropine is being exhibited, but I think the condition just described must be uncommon. As regards morphine in the treatment of peritonitis one reads of its being used with increasing frequency Still, I am sure that more attention needs to be drawn to its value in the treatment of peritonitis, one of the surgical conditions which must be met with fairly frequently by the general practitioner now that more or less surgery is come within the scope of general practice. It is significant that no reference to such an important subject is to be found in the recent numbers of the "Medical Annual." In the April number of the *Surgical Clinics of North America* just to hand, Dr Charles Gordon Heyd, of the New York Post-Graduate Hospital, gives several clinics on abdominal surgical conditions requiring operation. His after treatment repeatedly emphasized in each case he describes thus (p. 550).

> the routine treatment for peritonitis: (1) Nothing by the mouth, (2) slight Fowler position, (3) Murphy proctoclysis, (4) morphine sufficient to keep the patient quiet and free from restlessness.

He advocates tap water in place of saline solution for proctoclysis and one scarcely needs to state that the introduction of fluid in sufficient quantity is a *sine qua non* in the treatment. Even when it appears that proctoclysis is efficiently instituted, a subcutaneous injection of saline solution is often required and when needed is dramatic in its effects.

Note.

By **H. B. Devine, M.S. (Melb.),**

Honorary Surgeon to In-Patients, St. Vincent's Hospital, Melbourne.

I saw the first patient whose case is reported by Dr. Groves, three days after he had operated on her. She was then exceedingly ill and had been worse. Had Dr. Groves not contented himself with drainage under local anæsthesia, but had attempted to remove the appendix, I am sure that the patient would have died.

I agreed with Dr. Groves that the only chance she had was to continue the morphine treatment under which she was improving. I think that he is to be congratulated on the result, for no patient could have been worse. I am often surprised to find in these grave cases of peritonitis which follow perforation of the appendix, how curiously limited the zone of infection is to the area of the perforation, though unlocalized by adhesions. The art of removing the appendix without further distributing this infection over the surface of the small intestine with its power of absorption, is very great. The use of packs and partial evisceration or violent post-operative purging increases the infected area very much. Apart from its other beneficial effects, morphine stills peristalsis and limits infections. Its value is highly extolled by Crile. I saw some cases of peritonitis in which he had operated and was astonished at the large size of the doses of morphine that he had given.

In my opinion the success of Dr. Groves's cases should direct attention to the fact that in a certain type of peritonitis, the patient's life would be saved by following the methods which he has advocated. Particularly would this be so when the circumstances appear to be adverse.

A TUMOUR OF THE SPINAL CORD.[1]

By **J. Macdonald Gill, M.D. (London),**
Honorary Physician, Sydney Hospital.

M.R., a widow of 68 years, was admitted to the Sydney Hospital on October 23, 1920, complaining of pain in the back, weakness of the legs and some loss of control of the bladder and rectum.

The history showed that she was born in New South Wales and had lived partly in Sydney and partly in various districts in the country. She had been married twice, but had had no children.

Her previous health had been good. She had suffered from no serious illnesses.

She stated that eleven months previously she had begun to suffer from attacks of pain, radiating round from the back at about the level of the sixth rib. Pain was felt most severely under the left breast and in the left axillary line. Pain was also felt on the right side, but not so severely. It was not continuous. There would be several attacks lasting an hour or more daily. Later she began to have difficulty in walking and her legs became weak and stiff. During the fourteen days prior to admission there was some loss of control of the bladder and rectum. Since lying in bed the patient had suffered a good deal from painful involuntary movements of the lower limbs.

On examination the patient was found to be sitting up in bed, in considerable distress from pains in the back and cramps in the legs.

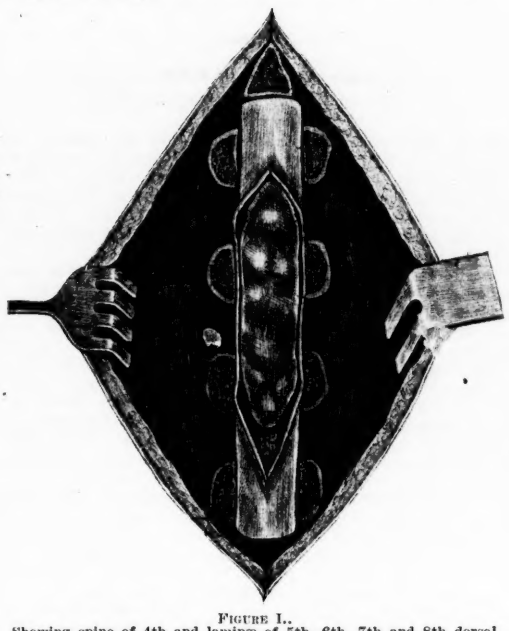

FIGURE I.
Showing spine of 4th and laminæ of 5th, 6th, 7th and 8th dorsal vertebræ cut across. The *dura* is slit open and the tumour is seen lying on the cord.

Nervous System.

The symptoms included:

(1) Paralysis of both lower limbs, with the hips and knees in the semi-flexed position.

(2) Involuntary drawing up of both thighs, with flexion of the knees.

(3) Pain in the back between the angle of the left scapula and the spine and pain under the left breast, with a numb sensation.

(4) Some loss of control of bladder and rectum.

The signs were as follows:

(1) The pupils were equal and reacted to both light and accommodation.

(2) The superficial abdominal reflexes could not be elicited.

(3) The knee-jerks were slightly increased.

(4) A double Babinski reaction was obtained.

(5) There was marked tenderness on pressure over the fourth, fifth and sixth dorsal spines.

(6) There was no ankle clonus.

(7) No hyperæsthesia was present.

(8) Sensation could not be satisfactorily investigated, owing to the pain from which she was suffering and the hysterical condition she was in.

All other organs were normal.

On October 10, 1920, her condition was unchanged. She then complained that the cramps attacked the lower part of the abdomen, giving rise to a sensation of a constricting band. Her blood was examined that day and found to be normal; there was no eosinophilia. There was a failure to respond to the Wassermann test.

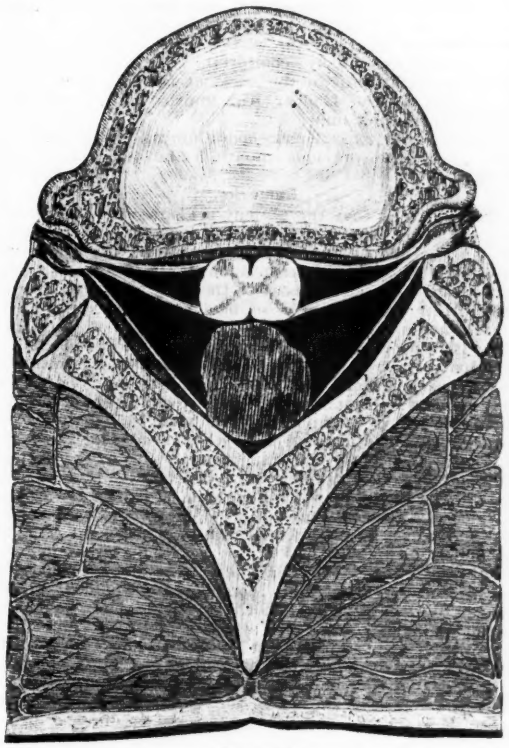

FIGURE II.
A cross-section through the 5th dorsal vertebra, including part of the intervertebral disc, showing the relation of the tumour to the *dura mater* and cord. The tumour actually produced greater compression of the cord than is shown in the drawing.

On November 5, 1920, she still had sharp spasmodic contractions of the legs. Paraplegia in flexion was marked. The reflexes were as before. It was now possible to test sensation, the result showing the presence of complete anæsthesia below the knees and disordered sensation above the knees, over the abdominal wall, to the xiphi-sternal line at the tip. Anæsthesia was present over the back as far as the eighth dorsal region. Her answers were imperfect when sensation was tested over an area extending for 5 cm. above this. There was complete disturbance of temperature sense below the waist line. Above this the answers were defective over the same area as for pain sensation.

On November 12, 1920, her general condition was about the same as it had been a week before. She had no control over bladder and rectum. The reflexes were as before. Sensation was tested again. All forms of sensation were absent as far up as the xiphi-sternal line, over the anterior wall of the abdomen. There was a zone of hyperæsthesia about the level of the eighth dorsal spine.

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on June 10, 1921.

Operation.

An operation was performed by Dr. R. Steer Bowker on November 16, 1920. The laminæ of the fifth, sixth and seventh dorsal vertebræ were first removed. The *dura mater* had a bluish appearance. On careful incision a little cerebro-spinal fluid escaped and a tumour lying on the posterior aspect of the cord in the middle line was brought to view. The lower end was free, but the upper end extended up under the arch of the fourth dorsal vertebra. When this was removed, the tumour came away quite easily, as it was only loosely attached to the cord. It was about 5 cm. long and round in shape. The compressed part of the cord was flattened and showed no pulsation; nor did the pulsation return after removal of the tumour.

On December 1, 1920, the patient was more comfortable, but still complaining. She had no control over urine and fæces. She could move her legs slightly.

On December 6, 1920, sensation was found to be returning over the legs; it was present up to the knees.

On January 13, 1921, the wound was practically healed. The patient was fairly comfortable, although she complained of slight pain in the back, at the site of operation. Her control of the bladder had improved, but control of the rectum had not improved.

On February 12, 1921, her condition was very much the same as in the previous month. She left the hospital that day.

Remarks.

It will be seen that the patient presented all the classical signs of a meningeal tumour situated in the mid-dorsal region. The history, too, was very typical. The first symptom was pain due to pressure on the nerve roots. Next ensued paralysis and stiffness of the legs, as the tumour got larger; then loss of control of bladder and rectum; finally, painful involuntary muscular contractions of the lower limbs, indicating a virtual separation of the lower half of the spinal cord from the brain. On examination immediately after admission there was found complete paralysis of both lower limbs, the hip and knee joints were flexed (a condition sometimes called "paraplegia in flexion") and there were frequent painful spasms in each leg. It was not possible to test sensation properly at first, partly owing to the patient's unsatisfactory mental condition and partly because each time the leg was touched with a pin, a painful reflex contraction was apt to be produced. However, as will be seen from the notes, it was soon definitely shown that sensation was almost completely lost up to the xiphi-sternal line over the anterior wall of the abdomen. The line of separation was perfectly well defined. Moreover, it remained constant from day to day. The resident medical officer, Dr. Edna Smith, and I, examining her at different times, came to the same conclusion. Anæsthesia over the back reached the eighth dorsal area; sensation was imperfect for 5 cm. above that. The patient complained of intense pain in the back. When the spines of the vertebræ were tapped this pain was greatly aggravated. Pain was always most intense on tapping the spine of the sixth dorsal vertebra. This was tested from time to time, but she was perfectly consistent in her replies. I came to the conclusion that the centre of the tumour was at the level of the sixth dorsal root; that possibly it reached as high as the fourth and probably somewhat below the sixth. There was no projection of the spines and no deformity of the spinal column. As to the nature of the tumour, the history clearly suggested a meningeal origin. A syphilitic lesion was excluded by the absence of a reaction to the Wassermann test. Moreover, syphilis seldom produces so complete and localized a paraplegia. Hydatid was a distinct possibility, although the two blood counts taken were quite normal, showing no eosinophilia. Meningeal tumours are usually not malignant and generally can be completely removed without any difficulty. Taking everything into account, I had no hesitation in recommending an operation. I advised the removal of the laminæ of the fifth, sixth and seventh dorsal vertebræ. Dr. Bowker, my surgical colleague, readily agreed to operate. The patient naturally hesitated at first, owing to her advanced age; but, after some delay, gave her consent. The tumour was situated exactly in the middle line posteriorly and compressed the cord so that it was quite flattened and devoid of pulsation.

The patient stood the operation well and convalescence was satisfactory, except that the superficial part of the wound became septic and suppurated. However, when she was again transferred to my care on January 21, 1921, the wound was quite healed. Undoubtedly she had then improved somewhat, though less than we had hoped. She left the Sydney Hospital on February 12 to go to a private nursing home. At this time sensation had returned somewhat, but there was very little control over bladder and rectum, nor was she able to stand. She had undoubtedly recovered some muscular power in the legs, but not much. Her mental condition was very unsatisfactory. She was highly hysterical and emotional. She died in the private hospital at the end of March, when apparently doing well. Dr. J. Morton, who had charge of her at that time, tells me that she died unexpectedly, no doubt worn out by pain and suffering. The tumour was pronounced an endothelioma and was undoubtedly non-malignant. Had she been younger, ultimate recovery might reasonably have been expected.

Improvement takes place slowly in these cases. It is usually many months before the compressed cord can regain its normal functions. In the meantime, there is great danger of death from bed-sores or urinary infection.

I wish, in conclusion, to emphasize the importance of early diagnosis and treatment in these cases. Once the diagnosis of tumour has been made and its exact position made out, operation should be done without delay. No operation should be undertaken until the localization of the tumour is reasonably certain. If it be not so, it is better to wait, as the progressive nature of the complaint will soon remove any doubt.

Note.

By **R. Steer Bowker, M.R.C.S., L.R.C.P.,**
Honorary Surgeon, Sydney Hospital.

Dr. J. Macdonald Gill has asked me to write a short account of the laminectomy which I performed on the patient whose case he has described. There was little of interest in the actual operation. The chief features of the case were the perseverence, skill and exactitude with which Dr. Gill made his diagnosis. I was thus enabled to cut down exactly over the site of the tumour.

To effect an entry into the spinal canal in this and in similar cases, perhaps the best procedure, because the quickest, is to cut away the spinal processes with a Doyen's saw, then to make an opening into a lamina either with a trephine or a cutting forceps and finally to remove as much as necessary with the type of cutting forceps which was used by the late J. B. Murphy. This plan is much quicker than an endeavour to saw away the lamina. There is no fear of injuring the cord, since there is a considerable space between the bone and the membranes and the bone may be cut away fearlessly. The expenditure of much time is saved.

The feature of this case which struck me most, was the small extent to which the cord was compressed. The tumour lay on the cord, causing little depression, and yet it led to a very serious degree of paralysis and a long time elapsed before the motor paralysis improved. This suggested to me that in certain cases of injury to the cord by an accident, when from the completeness of the symptoms we have been in the habit of concluding that the injury to the cord is too great to justify any hope that operative interference would do any good, we might perhaps moderate our views, seeing that the presence of a removable intra-dorsal blood clot might cause even those complete symptoms. Success might in these instances follow removal of the clot.

His Excellency the Governor of New South Wales in his speech opening the State Parliament on August 30, 1921, made reference to several matters affecting the public health. He said that measures providing for the endowment of motherhood and for the consolidation and amendment of the present laws with regard to the custody and welfare of children and the operation of the friendly societies would be presented. It was also the intention of his advisers to submit a bill to amend the *Lunacy Act* and measures to provide for the registration of nurses and the control of hospitals.

The Medical Journal of Australia.

SATURDAY, SEPTEMBER 10, 1921.

The Scientific Work of the Branches.

The primary function of the British Medical Association is the furtherance of the medical sciences. All its other forms of activity are subsidiary and of relatively small importance. Through its agency knowledge well established should be made available for all its members, obscure problems should be investigated and discussed and co-ordinated research should be undertaken. Morever, its organization should be used for the purpose of improving the standard of the practice of curative medicine, while the same machinery should be utilized for the introduction into the daily life of the medical practitioner of measures for the prevention of disease. The British Medical Assocation, the only representative organization of the profession in Australia, has thus the important duty of providing facilities for the advancement of medical knowledge, for the improvement of methods of practice and for the raising of the standard of practice. The Branches have recognized their obligations in this respect and have forged several weapons for their fulfilment. Each Branch holds throughout the greater part of the year regular meetings at which contributions on various subjects connected with the science and art of medicine are read. This *Journal* has been instituted for the purpose of serving as the official organ of the Branches of the British Medical Association in Australia and of assisting in the task of disseminating scientific information to the members. Quite recently the British Medical Association in Australasia has taken over the conduct of periodic congresses from an institution whose guarantee of continuity hung after each session on a single life. The Branches have associated themselves with the university authorities in the holding of post-graduate courses of medical instruction.

These healthy activities and several others of smaller moment, important as they are, are insufficient for the achievement of the prime objects of the Association. Since the termination of the war there have been many indications that more elaborate provisions are needed. The programmes drawn up with care and forethought by the Branch Councils have not satisfied those practitioners who have concentrated their attention on a particular branch of medical study and have thus acquired special knowledge of this particular chapter. In Victoria a few separate societies have been founded outside the Association for special branches of medical work. The membership of some of these societies is limited to practitioners who hold honorary positions at the larger hospitals and their educational value is consequently narrowed. Some of the societies, both in Victoria and elsewhere, have sought and obtained affiliation with the Branch, although the actual bond appears to be somewhat loose. Lastly, a few enthusiasts have realized the significance of a large forum and an eager crowd of listeners and have formed societies which have sought admission to the British Medical Association as sections of a Branch.

Underlying the formation of these societies is the desire to develope with some refinement a special branch of medical work. The Branch as a whole can scarcely afford to devote time and energy in any one direction to achieve more than a moiety of that which one of these societies hopes to attain. On the other hand, the British Medical Association is sufficiently pliable and accommodating to be able to lend its aid in this direction. It has recently been questioned whether the constitution of the British Medical Association provides for the affiliation of scientific bodies with the Branches. It is very important at the present stage of the fortunes of the Branches of the British Medical Association in Australia not to embark in any new venture which may cause embarrassment to the Branches when the amended constitution is introduced. There is, in addition, another objection to the plan of affiliation of an outside society as compared with the formation of a section. The former remains a sister institution and is not subject to the specific rules of the Branch. As a consequence, there is a tendency of affiliated societies to preserve more or less insularity. A section of a Branch serves a wider *clientèle*. While it has its own executive and

can frame its own rules, subject to approval of the Branch Council, it exists as part of the Branch and every member of the Branch can attend the meetings. The privilege of taking part in the debates and of participating in the other functions of the section is restricted to the members of the section. In practice a meeting of a section resolves itself into a debate by experts in a special branch of medicine with an auditorium of other members of the Branch who are anxious to learn. Any member of the Branch who is prepared to subscribe to the rules of the section and to pay the special annual subscription, can be enrolled. It is unlikely that a debate would be spoiled by the intervention of an inexpert member of the section. If the conception of sections meets with general approval, it would become feasible for two or more sections to organize conjoined meetings for the purpose of discussing a subject of common interest.

The Victorian Branch has led the way by the establishment of a section of preventive medicine. The institution of this section is of considerable importance. It is an earnest of the intention of the members to enlist the sympathy of the general practitioner in preventive medicine. It will be a means of introducing a scheme for the control of certain diseases which the official departments cannot hope to combat without the aid of the family doctor. It marks the dawn of a new era, when the medical profession will recognize that it has a real responsibility to bear in keeping people healthy, when the citizen will look to his medical attendant rather to save him from illness than to endeavour to rid him of a disease which has already manifested itself. Lastly, it will act as a censor and critic of the official public health departments and will urge them to ever increasing activity. It is hoped that the other Branches will emulate the admirable example of the Victorian Branch.

THE ÆTIOLOGY OF DISSEMINATED SCLEROSIS.

During the war years, we have suffered a disadvantage in that the German medical journals have not been available and consequently the records of scientific work carried out in Germany could only be studied indirectly through the medium of abstracts published in other journals. Arrangements are now being completed for the exchange with this *Journal* of a number of the more important German medical journals; this disability will, therefore, soon be removed. In the year 1917, Kuhn and Steiner carried out some important work in connexion with the ætiology of disseminated sclerosis. Prior to then neurologists had a very hazy conception of the nature of this disease and of the causes which contributed to its appearance. Over and over again attempts have been made to incriminate syphilis, but the results of the Wassermann complement deviation test and of other biological tests, as well as the evidence of clinical observation, have compelled careful students to exclude syphilis as a direct cause of this disease. The postulation of a "toxin" did not advance our knowledge, since no one has been in a position to demonstrate the presence of a noxious chemical substance within the organism. In a similar way "psychic" causes have been suggested; what is meant by "psychic" causes, however, is not disclosed. It has been noted that disseminated sclerosis often attacks persons who have been acutely ill with some infective process, especially of the nature of enteric fever. Often the nervous manifestations appear a long time after the acute infection; so long that a causal connexion may reasonably be doubted. Kuhn and Steiner examined three patients in the early stages of disseminated sclerosis and one two years after the onset of the signs. In the fourth patient an exacerbation of symptoms had been noted shortly before the examination. The blood of these four patients was found to harbour a very delicate spirillum, similar to but even more slender than the spirochæte of Weil's disease. They injected the blood and the serum of the four patients into guinea-pigs and rabbits. The laboratory animals became infected and died of the infection. Moreover, the spirilla were recovered from the blood in the liver of several of the infected guinea-pigs and rabbits. In the following year Siemerling was able to demonstrate spirilla indistinguishable from those described by Kuhn and Steiner in the brain of a man who had died of disseminated sclerosis. The organisms were seen by means of the dark ground illumination microscope. During the two years following Kuhn and Steiner's discovery, other observers repeated their experiments and confirmed their findings. In 1919 Marinesco injected the serum of two patients suffering from disseminated sclerosis into the brains of six guinea-pigs and found by dark ground illumination the organisms which Kuhn and Steiner called *Spirochæta argentinensis*. These guinea-pigs exhibited paralytic signs and general symptoms and died of the infection. Marinesco formed the opinion that the virus reached the central nervous system by way of the lymphatics. The earliest lesions were found in the cells of the adventitial sheath of the veins. In their later experiments Kuhn and Steiner have succeeded in infecting guinea-pigs and rabbits with the cerebro-spinal fluid of persons in the early stages of the disease. They have also succeeded in transmitting the infection to a monkey by intraperitoneal injection of the serum of a patient. The animal became paralysed in its lower extremities. After death (the monkey was killed 17 months after inoculation) circumscribed areas of varying shape of

degeneration of the medullary sheaths were found in the white matter of the brain. The areas contained granular cells filled with lipoidal substances; there was further an extensive proliferation of neuroglia cells. The distribution of the patches of degeneration was very irregular, but involved both cerebral hemispheres. The axis cylinders were scarcely affected.

It will be admitted that the evidence in favour of *Spirochæta argentinensis* being the causal organism of disseminated sclerosis is very strong. How the infection takes place is not yet known, nor can we be certain of the route along which the spirilla travel to reach the central nervous system. Hoffmann, of Havana, Cuba, has recently summed up the available data and has suggested that there may be a considerable interval between the primary infecton and the manifestation of the nervous symptoms, just as the primary symptoms of syphilis are usually noted years before the syphilitic lesions of the central nervous system are recognized. He suggests further that the spirochæte of disseminated sclerosis may have little affinity for other parenchymatous organs. The protozoological differentiation between *Spirochæta argentinensis, Spirochæta pallida* and *Leptospira icteroides* is definite and must be accepted. We may expect further elucidation of the obscure points in the ætiology of this uncanny disease within a short time.

IMMUNIZATION AGAINST MORBILLI.

Measles has long been the bugbear of the epidemiologist. The fact that the rash appears on the fourth day of illness renders all attempts to check the spread of an outbreak less promising than when the obvious manifestations succeed the onset of the period of infectivity by a short time. In the next place, the evasiveness of the causal organism and the extraordinary susceptibility of young children to it tend to lessen the prospect of success by way of the "previous case" and the "contacts." In Australia the community appears to regard measles with little concern. The case mortality is usually low and the stupid fairy tale that every child must be infected sooner or later has penetrated deeply into our households. It is, however, a disease of great importance, which at times can be very deadly. Its complications and sequelæ are too serious to ignore and the low mortality is no excuse for prophylactic inactivity. For a considerable time it has been suspected that the causal organism is a minute filter-passer. Observations have been made which reveal a distinct similarity between the organism of variola and that of morbilli. Working on this assumption, Dr. Degkwitz began in 1919 in the University Children's Clinic in Munich a series of researches with the object of attenuating the virus for the purpose of obtaining a prophylactic vaccine. At the Congress of the German Pædiatric Society recently held in Jena,[1] Dr. Degkwitz reported the results which he had obtained in his cultivation experiments. Adopting a special method of culture, he claims to have cultivated the measles virus on a medium containing human tissue as the protein constituent. The virus after from five to six generations on this special culture medium was found to be so attenuated that children who had not previously had measles, manifested extremely slight signs of infection on the 13th to 15th day after inoculation. These children were then exposed to infection, but remained well. Unfortunately the details of the cultivation experiments are not yet available, nor are we told how the exposure to mass infection was conducted. In a short note from which our information is culled, the statement is given that experiments with culture media with animal protein promise to yield good results. The significance of this is that if the virus could be grown in an attenuated form in a medium with animal protein, quantities sufficient to immunize the children of a large community would be more readily prepared. The plausibility of the claim and the fact that the pædiatrists attending the congress evinced a great deal of interest in the communication, must be regarded as a promising sign. Further evidence from Dr. Degkwitz will be awaited with interest.

[1] *Münchener Medizinische Wochenschrift*, June 24, 1921.

THE SOCIETY OF RETURNED MEDICAL OFFICERS OF QUEENSLAND.

The first annual meeting of the Society of Returned Medical Officers of Queensland was held in the B.M.A. Rooms, Adelaide Street, Brisbane, on July 27, 1921.

The Honorary Secretary reported that the membership of the Society was 63. Rules had been drawn up and circulated to all members. The inaugural meeting had taken place on February 20, 1920, and since that date one general and five Council meetings had been held. The Society had taken action on several occasions with the object of protecting the interests and welfare of members.

In August, 1920, during the Congress week, a meeting of representatives of the several societies of returned medical officers in Australia had been held. At this meeting the advisability of establishing a Federal society of returned medical officers had been discussed and it has been resolved to proceed with the foundation. The Honorary Secretary of the Society of Returned Medical Officers of Victoria had been asked to communicate with the executives of the other societies with a view to the election of an executive committee of the proposed Federal society.

The returned medical officers from other States who attended the Australasian Medical Congress, Brisbane, 1920, were entertained at dinner on August 25, 1920.

The Honorary Treasurer presented his financial statement, which showed a credit balance of £28 13s. 4d..

The following were appointed office-bearers for the ensuing year:

President: Dr. J. Espie Dods, D.S.O., M.C..
Vice-Presidents: Dr. T. G. Ross, D.S.O., Dr. G. P. Dixon, C.B.E., Dr. J. B. McLean, D.S.O..
Honorary Secretary: Dr J. J. Power, D.S.O..
Honorary Treasurer: Dr. E. D. Ahern.
Members of Council: Drs. Lilian Cooper, E. Elmslie Brown, D. A. Cameron, H. V. Foxton, Eustace Russell.
Honorary Auditors: Dr. R. Graham Brown, Dr. D. Gifford Croll, C.B.E..

The Medical Journal of Australia offers its hearty congratulations to Dr. R. H. J. Fetherston on his election to the Legislative Assembly of Victoria. Dr. Fetherston scored an important victory in defeating Mr. A. F. Parker, the Labour member of the previous Parliament, by a majority of 147.

Abstracts from Current Medical Literature.

ORTHOPÆDIC SURGERY.

(113) Loose Bodies in Joints.

An investigation into the subject of loose bodies in joints has been made by A. G. Timbrell Fisher (*Brit. Journ. of Surgery*, April, 1921). Only those bodies which are formed of cartilage or of cartilage and bone combined, are discussed. Loose bodies are classified into three groups: (*i.*) Those occurring in connexion with some more or less general pathological process affecting the joint. (*ii.*) Those occurring in joints that are otherwise apparently normal. (*iii.*) Those which are synovial chondromata. Under the first group occur those bodies which have been described in cases of osteo-arthritis, in which instances they may be synovial chondromata, detached osteophytes or detached epi-articular ecchondroses; those which occur in tabes when similar bodies are found, but are generally larger; and those which are met with in tubercular arthritis when necrosis from interference with the blood supply leads to the formation of sequestra. In acute arthritis there may be detached flakes of articular cartilage or bony sequestra or the whole articular end may necrose and be found loose in the joint. In regard to the second group, loose bodies are much more common in males than in females and occur most frequently between the ages of fifteen and twenty-five. The commonest site is the knee and here they usually occur singly. In cases of recent detachment, bone and living cartilage with no proliferative changes may be found. When bodies have been in the joint for some time the articular cartilage shows proliferative changes in varying degrees and there may be new bone formation. The third group—synovial chondromata—may be single or multiple. They may be pedunculated or free or they may be diffuse and are usually associated with free bodies in the joint cavity. All the bodies of this type originate from cartilage cells in the synovial villi and may follow injury or occur in connexion with chronic synovitis. In summing up the ætiological and pathological considerations the author says that the formation of the bodies in the first group is bound up with the larger question of the ætiology of osteo-arthritis and in the third group with the ætiology of tumours in general, but in the second group the pathological data, both in regard to naked eye and microscopic features of this group of bodies, demonstrate that they are detached by trauma. Clinical histories and experimental evidence also support this view. Deductions are made from the pathological data upon the vitality, growth, repair and nutrition of articular cartilage. Cartilage cells are capable of growth and repair and can live and proliferate in the synovial fluid. On the other hand, the detached bone cells are almost invariably dead and in no single case was there any evidence of proliferation of osteoblasts with the formation of new bone, unless the bone had obtained a secondary attachment. The treatment of traumatic loose bodies and of synovial chrondromata is in most instances removal. In the case of traumatic loose bodies the results are good, unless the bodies have been present long enough to cause a chronic villous synovitis or osteo-arthritis. When the bodies are synovial chondromata the results are also good, if the condition is not progressive. In the case of pathological loose bodies in osteo-arthritis an operation is usually indicated in young or middle-aged people, when troublesome locking occurs and when the joint is not seriously disorganized.

(114) The Reconstruction Operation for Ununited Fracture of the Neck of the Femur.

The disability which follows fracture of the neck of the femur, is greatest when union of the fragments does not occur. Royal Whitman considers that operative treatment offers the only prospect of definite relief (*Surg., Gynec. and Obstet.*, June, 1921). The object is simply to secure union between the fragments and the result is good if the neck be long enough to permit a sufficient range of abduction. When the neck fragment has practically disappeared, relief may be obtained by approximation of the shaft to the head after removal of the extremity of the trochanter. The alternative methods of treatment are to remove the head of the femur and either to implant the upper extremity of the shaft in the acetabulum or to cut through the trochanter and to force it outwards sufficiently to permit of a more complete enclosure of the extremity of the neck in the acetabulum. The author contends that these procedures do not produce stability and only relieve the disability to a small extent. He has, therefore, devised an operation to reconstruct the mechanical condition required for security and controlled movement. He removes the head of the femur, cuts through the base of the trochanter in an oblique direction corresponding to the angle of the neck, and the femur is then shaped and thrust into the acetabulum. The trochanter is then drawn downwards and its bare surface applied to a prepared bare area on the shaft of the femur. In this way a fair imitation of the neck of the femur is obtained and a muscular sling is provided to hold the bone in the acetabulum. The limb is fixed in extension and abduction by a long plaster spica for about four weeks, after which a short spica is applied and the patient is encouraged to bear weight in order to hasten reconstruction of the articulation. When weight can be borne without discomfort, the support is removed and control established by exercises.

(115) Hallux Valgus, Hallux Rigidus and Hallux Malleus.

Two characteristics are evident in the deformities known as *hallux valgus*, *hallux rigidus* and *hallux malleus*. The first is a disturbance of muscle balance which is most prominent in *hallux valgus*, and the second is a condition of joint wear, the *arthritis deformans* of text books, which is most conspicuous in *hallux rigidus*. Mark Jansen (*Journ. Orthop. Surg.*, March, 1921) says that *hallux rigidus* developes when the patient's line of gravity, when he is walking, passes nearer the first metatarsal bone than normally and subjects the first metatarso-phalangeal joint to undue strain. *Hallux malleus* developes as a result of contracture of the *flexor brevis hallucis* occasioned by a voluntary effort on the patient's part to minimize the discomfort caused by lipping of the metatarsal head in the plantar direction. *Hallux valgus* is attributed to the wearing of shoes which are too narrow or too pointed and have high heels. Treatment should be directed to muscle balance wear. The transplantation of the *abductor hallucis* tendon has proved useful and the removal of a part of the metatarsal bone is an effective surgical measure. Well-fitting shoes with a raised inner border may help to mitigate a threatening deformity.

(116) Congenital Torticollis.

H. W. Meyerding (*Journ. Orthop. Surg.*, March, 1921) contends that congenital torticollis is a very rare deformity. Only 26 out of 212,000 patients who were examined at the Mayo Clinic, had this deformity. The ætiological factor appears to be trauma of the sterno-mastoid muscle at or preceding birth, the trauma leading to an ischæmia which results in the appearance of chronic interstitial myositis. Heredity, infection and syphilis do not seem to be factors. A feature is made of differential diagnosis and the treatment advocated is surgical. The sterno-mastoid is divided through an incision just above and parallel to the clavicle. Division of the superficial and deep fascia and the platysma is usually required to enable the deformity to be corrected. Retention of the head in an over-corrected position for one to three months is advised. This is followed by exercises. In small children permanent deformity may be prevented by early treatment and facial distortion may disappear after operation in young patients.

MORPHOLOGY.

(117) The Phenomena of Birth in the Opossum.

Carl G. Hartman (*Anatomical Record*, October 20, 1920) gives an account of his observations of the method of transfer of the young of the opossum (*Didelphys virginiana*) to the pouch. The opossum observed was kept in a cage just outside a house window, this cage being lighted when necessary with a red electric light. One evening the pregnant animal showed signs of restlessness and began to clear out the pouch. This she did about four times. Then began a short series of spasmodic contractions of the abdominal wall, after which the animal came to a sitting posture with legs extended.

She then arched her body, bringing the head close to the vulva. The author was unable to observe the embryos which very likely passed into the pouch with the first licking of the genital opening. The opossum could be plainly heard lapping up the chorionic fluid. Then the observer noticed that a tiny living mass appeared at the vulva and scampered up over the entanglement of hair into the pouch to join the other embryos which had apparently reached the pouch in the same manner while the observer was changing his position. The embryo travelled by its own efforts without any assistance on the mother's part, other than to free it of liquid on its first emergence from the womb. This ten-day old embryo, in appearance more like a worm than a mammal, is able to crawl fully 7.5 cm. over a difficult *terrain*. It instinctively discovers a nipple in the pouch among a profuse growth of hair. Failure means inability to live. Under ether anæsthesia the animal was examined and it was found that all the young had been born and were in the pouch. There were 18 young and only 12 were attached to nipples. There was room for one more, the remainder being left to starve. Some were detached and were observed to employ a kind of swaying "overhead stroke," as if swimming, the snout at each movement touching the mother's skin in search of a nipple. They were also engaged in active breathing and sucking movements. The author discusses briefly popular folklore concerning the birth of the young opossum and he quotes the only other known account of actual observations of the birth of a young marsupial, in this instance a kangaroo (*Macropus rufus*). This was published in the *Western Mail*, of Perth, Western Australia, on January 3, 1913, the observer being A. Goerling. An account is also given of the birth which takes place, not through the lateral vaginal canals, but by an actual rupture of the uterine *cul-de-sac* into the cloaca or median vaginal canal, the passage being termed the "pseudo-vaginal canal" by Hill, who had already observed this phenomenon in the bandicoot and the native cat. This pseudo-canal is an actual split in the connective tissue. The lateral vaginal canals are believed to functionate as *receptacula seminis*.

(118) Relative Activity of the Thyreoid Lobes.

Muscular activity can be recorded and measured by means of a modern string galvanometer. The electrocardiograph gives a record of the cardiac mechanism, by registering changes in electric potential, which occur with each phase of the cardiac cycle. Several observers have recorded the electrical changes attending glandular activity. It was considered reasonable to suppose that the activity of such a superficial gland as the thyreoid could be recorded by means of electrodes placed on the skin directly over the gland. N. Worth Brown has made use of the electro-cardiograph to estimate the activity of one lobe of the thyreoid, as compared with that of the opposite side (*Endocrinology*, January, 1921). A record was made first with an electrode placed on the manubrium, in order to determine the deflection produced by the skin and body tissues. When a lobe of the thyreoid was connected, the negative deflection increased. By changing "leads" without readjusting the negativity, each lobe was compared with the manubrium and with that of the opposite side. Photographic records were made. Reports on three cases are given. The first was a hypertrophy of the gland with no thyreo-toxicosis in a male patient of 20 years whose right lobe was larger than the left. It was found that the lead to the manubrium gave a deflection of 0.9 cm., that to the right lobe 1.2 cm. and that to the left lobe 2.2 cm.. If these readings indicate the relative negativity of the two lobes, then in this case the right lobe, the larger of the two, is the less active. In the second case, that of a woman of 32 years, who had moderate enlargement of both lobes, without thyreo-toxicosis, but whose right lobe was slightly larger than the left, the relative negativity of the right lobe, and therefore its activity, was much greater than those of the left lobe. The third case was one of slight bilateral hypertrophy in a woman of 22 years suffering from mild hyperthyreoidism. The activity of the two lobes was shown as equal. It is suggested that the method may be of practical value and that further studies should be made.

(119) The Hypophysis in Hibernation and Inanition.

A. T. Rasmussen has made a detailed study of the *hypophysis cerebri* of the woodchuck (*Marmota monox*) with special reference to hibernation and inanition (*Endocrinology*, January, 1921). He finds that the hypophysis of the woodchuck contains all the generally recognized structures. A sex difference is revealed by the volumetric analysis of the lobes. The male gland is on an average 13% larger than the female. This difference is equally shared by the *pars nervosa* and the *pars buccalis* (*glandularis*), but of the latter the *pars intermedia* is 50% larger and the *pars anterior* only 10% larger in the male. Hibernation produces no change in either the weight or the histological structure of the hypophysis as compared with the pre-hibernating gland. Immediately after the animals wake up in the spring, during the rutting season, hypertrophy takes place in the hypophysis amounting to 33% and is distributed proportionately among the three chief parts of the gland. A conspicuous change accompanying this activity is a tripling of the relative number of basophiles and a distinct increase in their staining reactions. The return to the pre-hibernating stage occurs late in the summer after the active stage of the sexual cycle has terminated. There is a striking difference in the reaction of the woodchuck and of the albino rat to inanition. In the rat inanition produces atrophic changes in the hypophysis. In the woodchuck starvation even in spring during several weeks of activity and after deprivation of food for three months during dormancy is attended with no such change, but rather with hypertrophy of the whole organ and hyperplasia of some of its elements.

(120) Food Reactions of Amœba Proteus.

W. A. Kepner and W. C. Whitlock state that the *Amœba proteus* reacts to two types of food, the most conspicuous differences between them being that in one group the food or prey is motile, while in the other it is non-motile (*Journal of Experimental Zoology*, April, 1921). The conduct of the animalcule towards non-motile food is much less complex than towards motile food. When the food is non-motile, the amœba tightly surrounds it, but when it is motile, a wide embrace is made and the prey is disturbed only when retreat is cut off. If the object usually moves in a horizontal plane, the amœba first surrounds it in this plane and then cuts off its vertical paths of escape. This reaction is usually brought about by the co-operation of both ectoplasm and endoplasm, which are both highly contractile when conditions demand it. The process of ingestion of food is a reversible one, as food half, almost or wholly ingested may be egested. The amœba's reaction differs from physical and chemical phenomena in that they are qualitative rather than quantitative and are made in the interests of the acting organism.

(121) The First Thoracic White Ramus Communicans in Man.

S. E. Johnson and M. L. Mason, moved by the evident lack of agreement and uncertainty in the statements of anatomical authorities regarding the occurrence of a white *ramus communicans* in connexion with the first thoracic spinal nerve, have investigated the subject and present their findings (*Journal of Comparative Neurology*, April, 1921). In a number of fresh autopsies the authors found in all cases at least two *rami communicantes* arising from the first thoracic nerve. In addition, twelve *cadavera* were examined in a laboratory and one or more white rami were found arising from the first thoracic spinal nerve and connecting, as a rule, with the stellate ganglion. These contained a relatively high percentage of large medullated fibres. The inferior cervical and first thoracic ganglia were not invariably fused, although this was the usual condition. Of numerous rami connecting the eighth cervical nerve with the inferior cervical or the stellate ganglion none have been shown to be either white or mixed in character. But, on the other hand, it is well within the limits of possibility that occasionally the highest white *ramus communicans* may arise from the eighth cervical nerve or when there exists a posterior arrangement of the brachial plexus, it may take its origin from the second thoracic nerve.

British Medical Association News.

SCIENTIFIC.

A meeting of the Victorian Branch was held in the Medical Society Hall on June 1, 1921, the President, Mr. Basil Kilvington, in the chair.

Dr. K. Stuart Cross read a paper on "The X-Ray Examination of the Abdomen Following Inflation of the Peritoneal Cavity" (see page 195).

Dr. Cross combined with the paper an exhibition of numerous X-ray photographs, obtained after inflation of the peritoneal cavity with oxygen. A number of plates were mounted in a viewing box and others were projected on the screen. He also demonstrated the apparatus employed for the introduction of oxygen into the peritoneal cavity.

Dr. C. E. Dennis, O.B.E., exhibited a series of skiagrams illustrative of early and advanced pulmonary tuberculosis in soldiers. In the course of his remarks he drew attention to a frequently repeated observation that in many of the patients there were comparatively few physical signs when considered in the light of the extent of damage revealed in the skiagram. The series of skiagrams also demonstrated the large proportion of cases in which pulmonary tuberculosis originated as a hilus, *i.e.*, bronchial gland affection and thence proceeded by the para-tracheal channels to the apices of the lungs.

Dr. Stanley Argyle, M.L.A., expressed his very great appreciation of the paper read by Dr. Cross and tendered his congratulations on the pioneer work carried out. He had been intensely interested in the demonstration of the method and its results, which the present occasion had been his first opportunity of seeing.

Dr. Cross had introduced them to a new field in radiological work and it certainly appeared that the excellent results to be obtained by X-ray examination of the abdomen after inflation of the peritoneal cavity with oxygen represented a great advance in the radiographic exploration of the abdomen. Possibly, with the fuller development of this method, it would obviate a certain number of exploratory abdominal operations. His first impression of the procedure was that it was rather daring, but it was evident from the experience of Dr. Cross that patients were very little upset by it.

Dr. Argyle inquired of Dr. Cross whether he would advocate the introduction of oxygen into the peritoneal cavity as a routine, or would he limit its use to selected cases. Again, did the inflation with gas materially affect the time of exposure required to insure a successful plate? The speaker referred to the employment of oxygen to distend the bladder for radiological work and remarked that the method had not come into very general use, chiefly because the bladder was so accessible for direct examination by the cystoscope.

Dr. Dennis had reiterated the fact that in pulmonary tuberculosis the clinical signs and radiological findings frequently did not coincide. As a rule, X-ray examination revealed much more extensive mischief than was indicated by the physical signs. The question as to whether a tuberculous focus was quiescent or active was not one which the radiographer could be expected to decide; that decision was for the physician, who was in the best position to survey all the features of any given case. Dr. Argyle commented upon the differences radiologically between tuberculosis supervening in soldiers after "gassing" and tuberculosis as it developed in the civilian. The spread of infection in the lung as indicated by Dr. Dennis's X-ray plates, was a point of which physicians and pathologists might take note. The radiograms exhibited afforded strong support to the conception of hilus infection as the starting point for pulmonary tuberculosis.

Dr. C. E. Dennis congratulated Dr. Cross on his enterprise in employing what promised to be a very valuable method in radiology. The procedure appeared to open up a new vision for the radiographer and the plates to be obtained by the preliminary introduction of oxygen into the peritoneal cavity were a revelation.

With Dr. Argyle, he would like to ask if there were any special indications for the employment of inflation, or was it to be used as a routine. In private practice he would be somewhat anxious about sending a patient home after his various abdominal organs had been induced to move about in such an unusual manner. He was impressed with the possibilities of the method in pathological conditions of the gall bladder, in abdominal hydatids and especially in retro-peritoneal growths, which generally were very difficult to diagnose by ordinary methods of examination. It was pleasing to note that the consensus of opinion was that the intraperitoneal injection of gas was an innocuous procedure and at the same time it was one which opened up the diagnostic field in debateable cases very widely.

Dr. Harold Irving said that he had been impressed with the possibilities of the method of inflation of the peritoneal cavity as an adjuvant to X-ray examination on the first occasion that Dr. Cross had suggested its trial at No. 11 Australian General Hospital at Caulfield. Since that time he had had the pleasure of being associated with Dr. Cross in some remarkably interesting work. In the first instance in which trial had been made, the appliances were perhaps somewhat crude and consisted of a cylinder of oxygen from which was led a rubber tube attached to a cannula. The patient was the subject of ascites and after as much fluid as possible was withdrawn, oxygen was allowed to enter the peritoneal cavity from the cylinder. From that first experience the necesssity for warming the gas became apparent, as there was appreciable further distension of the patient's abdomen after the flow of gas had been stopped. With further experience they had been able to improve the technique and bring it to the stage which Dr. Cross had demonstrated.

The needle employed was virtually a "serum" needle and there seemed to be no danger of puncturing the bowel unless by an unfortunate mischance there should be a coil of gut adherent to the abdominal wall at the site selected to introduce the needle. If in such a case the bowel were entered, the subsequent inflation would be localized and not general and uniform as followed the injection of gas into the peritoneal cavity. It seemed highly improbable that any harm would be done, as the gas was introduced under very light pressure.

Dr. Irving described the skiagrams obtained after inflation of the peritoneal cavity as incomparable and said that the method was particularly valuable for the elucidation of doubtful splenic and renal enlargements. The two shadows of the spleen and kidney could be perfectly shown with resulting clarity of diagnosis as to the affected organ. For the examination of the fixed organs generally this method was very much superior to those in general use.

Dr. Cross had pointed out the risks attendant on inflation of the peritoneal cavity in the presence of subphrenic abscess. He (Dr. Irving) would not employ the method if he had reason to think that sub-phrenic abscess was present. In those cases in which this contingency was a possibility, it was wise to conduct the whole examination with the patient lying down and as far as possible in positions which did not lead to rotation of the liver with consequent traction on the attachments of this organ to the diaphragm.

The special use of the procedure under discussion was also seen in cases of tuberculous caries of the spine, in which the existence of a psoas abscess was doubtful. Distortion of the psoas muscle could be seen plainly in radiograms taken after inflation; he had not observed such pictures in plates taken in the ordinary manner. In conclusion, Dr. Irving expressed the opinion that radiographic examination after inflation of the peritoneal cavity with oxygen was a large step forward in the diagnosis of abdominal lesions.

Dr. C. A. Courtney said that he had been impressed with both papers as dealing with two subjects of great interest and practical importance, scientifically and economically. The manner in which the inflation process enabled each organ to be shown in outline at will was very striking and it had already proved an economical procedure in obviating the necessity for exploratory operation.

With reference to the chest skiagrams shown by Dr. Dennis, Dr. Courtney emphasized the value of radiographic work in this particular from the point of view of the Department of Repatriation.

Many of the men eventually shown by X-ray photographs to be suffering from tuberculosis exhibited no physical signs

at all on their first reporting with ill-health some twelve or eighteen months after their return from overseas. The information gained by radiography as to diagnosis and extent of the disease process was highly important both to the men themselves and to the Department. All the patients reviewed by Dr. Dennis that evening were in receipt of pension or sustenance allowance.

He agreed that radiography was of very little utility in estimating the activity or quiescence of tuberculous pulmonary lesions and was of opinion that graduated work as applied in sanatorium methods was the only way in doubtful cases by which a reliable conclusion on this point could be reached.

In conclusion, Dr. Courtney paid a tribute to Dr. Dennis's work as of great value in repatriation, for the soldiers' welfare and as guidance in the assessment of pensions. It helped the patient to realize his hygienic necessities and when forwarded to his medical adviser the X-ray report was again a help towards co-ordination of treatment. And, not least in importance, it impressed the soldier that an active and useful interest was being taken in his welfare.

Dr. K. Stuart Cross expressed his thanks for the attention that had been accorded his paper and demonstration. In reply to Drs. Argyle and Dennis, he stated that for the present he would advocate the restriction of the method of examination he had described to selected cases. Inflation of the peritoneal cavity to facilitate radiological examination of the abdomen was particularly useful for the inspection of the solid organs. In the course of the paper he had given a list of general indications, and in a particular case the decision as to the employment of this method might well be made a matter for consultation between the physician or surgeon and the radiologist.

With reference to the time of exposure required, Dr. Cross pointed out that after inflation and the consequent recession of the gut, plates were secured with a shorter exposure than was usually necessary.

One of the organs frequently required to be examined was the spleen; while the spleen was but rarely seen in plates taken by ordinary methods, he could say that he had never seen a plate secured after inflation in which the spleen was not distinct.

In conclusion, Dr. Cross remarked that the various speakers had extended to him more appreciation than criticism, although he had hoped for a share of the latter. He reminded the meeting that he had not attempted to demonstrate pathological conditions, but he hoped to have a later opportunity of so doing.

Dr. Dennis, in reply, said that he was in agreement with Dr. Argyle in the opinion he had expressed regarding the possibility of the radiological differentiation between quiescent and active tuberculosis. It was not a distinction that the radiographer could make; at times an impression was gained from a blurred appearance in enlarged glands as contrasted with the dense, defined shadow of calcareous glands that the former were probably the site of an active lesion, but it was not possible to speak positively.

The distinction between active and quiescent pulmonary lesions must depend ultimately on clinical observation.

The President conveyed the thanks of all present to Dr. Cross and Dr. Dennis. As a surgeon he was especially interested in Dr. Cross's paper and, although he would naturally hesitate at a first suggestion to inflate the peritoneal cavity, Dr. Cross had shown that very little discomfort and no bad results attended the procedure.

Mr. Kilvington suggested that the method might be serviceable in morbid conditions of the gall bladder and in the diagnosis of such renal tumours as were attended by few symptoms and no hæmaturia. In such cases the distorted outline of the kidney might be brought out by the use of radiography after inflation of the peritoneal cavity.

MEDICO-POLITICAL.

A meeting of the Western Australian Branch was held at the Perth Public Hospital on July 20, 1921, Dr. G. W. Barber, C.B., C.M.G., D.S.O., the President, in the chair.

At a meeting held on April 20, 1921, a report of a special committee appointed to consider the question of the rates for lodge practice had been considered. A memorandum by Dr. I. Way, of Boulder, had also been presented. In the course of the discussion it had been pointed out that the Council of the Friendly Societies' Association had been authorized by the lodges to offer 21s. as the rate for metropolitan members. The rate had previously been reduced from 25s. to 26s. and the committee set out the difficulties connected with the negotiations. It was then suggested that an endeavour should be made to obtain the 26s. rate for metropolitan districts. The discussion revealed to the Council the wishes of the members. In the end the meeting resolved to leave to the discretion of the Council the final adjustment.

Dr. T. L. Anderson, the Honorary Secretary, moved on behalf of the Council that the Model Lodge Agreement should be adopted and should be applied through the State. The motion was seconded by Dr. J. J. Holland and after discussion was carried. The following is a summary of the provisions:

(*i.*) *Rates*—

Metropolitan district	24s.
Kalgoorlie, Boulder and Albany	26s.
Country districts	30s.

(*ii.*) *Mileage*—

Between 8 a.m. and 8 p.m.:

Metropolitan district	2s. 6d.
Extra-metropolitan districts	3s. 6d.

Between 8 p.m. and 8 a.m.:

Metropolitan district	3s. 6d.
Extra-metropolitan districts	4s. 6d.

(*iii.*) *Date of Introduction.*—The new conditions will start on September 1 and October 1, 1921, the dates on which the financial quarters of the various lodges begin.

(*iv.*) *Enforcement.*—No agreement shall be made by any lodge with any practitioner except on the terms and conditions of the modified Model Lodge Agreement. Every agreement shall be submitted to the Western Australian Branch of the British Medical Association and to the Council of the Friendly Societies' Association on the prescribed form.

(*v.*) *Duration of Agreement.*—The agreement with the Council of the Friendly Societies' Association shall be for one year at least and shall be terminable by the giving of three months' notice thereafter.

(*vi.*) *Other Provisions.*—The Model Lodge Agreement shall be the existing Model Lodge Agreement modified to provide for the alterations set out above.

(*vii.*) *Interpretation.*—The rates referred to in paragraph (*i.*) shall be regarded as minimum rates.

In accordance with a resolution passed at a meeting of the Queensland Branch on July 15, 1921, to the following effect:

> That the Branch permits members to make arrangements with the Australian Natives' Association on the terms of the Model Lodge Agreement, provided that no member of the Australian Natives' Association be exempt from the wage limit as laid down in the Model Lodge Agreement,

the embargo placed on this association has been removed as from July 1, 1921. A circular has been issued to the members of the Queensland Branch, calling attention to the recognition of the lodges of the Australian Natives' Association in the metropolitan area by the Branch.

The undermentioned have been nominated for election as members of the New South Wales Branch:

Arthur Stanley Hughes, Esq., L.R.C.P., L.R.C.S., Edin., L.R.F.P.S., Glasg., 1918, c/o. Commercial Banking Company of Sydney, Head Office, George Street, Sydney.

Ernest Bruce Smith, Esq., M.B., Ch.M., 1920 (Univ. Sydney), Paterson, N.S.W.

Leonard Darnley Taylor, Esq., M.B., Ch.M., 1920 (Univ. Sydney), Royal Alexandra Hospital for Children, Camperdown.

DINNER TO COLONEL A. SUTTON, C.B., C.M.G., V.D..

The officers of the Australian Army Medical Corps, active and reserve, of the First Military District, entertained

Colonel A. Sutton, C.B., C.M.G., V.D., at dinner at the Bellevue Hotel, Brisbane, on August 26, 1921, on the occasion of his retirement from the position of Principal Medical Officer of the First Military District. Colonel Sutton's retirement has necessarily followed the abolition of the office. An illuminated invitation to the dinner was addressed to Colonel Sutton. It bore the following signatures:

R. Marshall Allen, A. Graham Butler, D. A. Cameron, D. Gifford Croll. G. P. Dixon, J. Espie Dods, J. V. Duhig, H. V. Foxton, J. Lockhart Gibson, W. Ryton Kelly, C. M. Lilley, W. Wilton Love, G. W. Macartney. A. H. Marks, A. V. Meehan, E. S. Meyers, A. P. Murphy, A. T. Nisbet, J. J. Power, W. N. Robertson, Eustace Russell, C. Shellshear, H. J. Stewart, M. Graham Sutton, C. E. Tucker and V. N. B. Willis.

Medical Societies.

THE MEDICAL SCIENCES CLUB.

A meeting of the Medical Sciences Club of South Australia was held at the University of Adelaide on June 3, 1921.

Professor Kerr Grant demonstrated the action of a Langmuir condensation pump in evacuating an X-ray bulb yielding an X-ray vacuum in about six minutes. When Professor W. H. Bragg made the first X-ray bulb constructed in Adelaide, the evacuation lasted for twelve hours by a hand-operated pump.

Professor T. Brailsford Robertson demonstrated the methods of handling, housing and feeding mice employed in the growth experiments conducted under the Animal Products Research Foundation. The technique was designed so as to exclude epidemic infections. Definite substances were added in unusual amounts to a normal and varied diet to ascertain their effect upon the growth of the animals. The animals were weighed each week and the results treated statisticaly, the probable error of every estimation being determined.

Professor E. H. Rennie exhibited three substances isolated from *Xanthorrhœa* gum. The most abundant of these was a substance, pæonol, which was also found in the roots of *pæonia* and was used as a medicine in Japan. This was obtained from a red variety of the gum. From a yellow variety besides this substance another was obtained which differed from pæonol in the possession of an additional hydroxyl group and which has not previously been described. The gum obtained from *Xanthorrhœa prissii* yielded a third third substance, also not previously known, which was a derivative of diphenyl ether.

Professor Rennie also exhibited a dye, or a mixture of two closely related red dyes, obtained from the tubers of *Drosera*. The constitution of these dyes had not yet been definitely established.

Dr. H. K. Fry reported the case of a man suffering from shell shock who had been blind for three weeks and then recovered the sight of his right eye. By re-education sight was restored to his left eye, but he now suffered from crossed double vision. This was not due to any failure of the muscles, because the deviation of the images did not differ sufficiently in differing positions of the eyes. Dr. Fry pointed out that if one eye were covered and an object fixed with the uncovered eye, on uncovering the hitherto unused eye momentary double vision was experienced. In other words, in the absence of actual vision convergence was imperfect. He believed that in the case under consideration this normal visual defect was greatly exaggerated.

Dr. Fry also reported a case showing the mechanism of the formation of a compulsory idea. A neurasthenic returned soldier complained of an obsession which he knew to be absurd, to the effect that his fiancée would be false to him. Questions were asked with the object of ascertaining whether any advantage would accrue to the man if the girl were to give him such an excellent reason for breaking off his engagement. It was found that the man was dissatisfied with his financial position and desired to make a change involving elements of speculation which he did not feel justified in undertaking while engaged. But he could not break off his engagement without valid excuse, Hence, the idea of breaking off the engagement being repressed as a dishonourable one, the idea grew and became compulsory that the girl was about to give him a legitimate excuse. The mechanism of the formation of the idea having been explained to the subject, it ceased to trouble him. The case was presented as an example of a large number which were not infrequent in daily life.

On July 6, 1921, the Royal Society of Medicine presented Sir Almroth Wright, K.B.E., C.B., F.R.S., with a gold medal for his valuable bacteriological researches which had proved of service in the war. The medal has not previously been awarded. It is intended to give it every third year for original discovery in medicine and other allied sciences or for the practical application of the results of previous investigations of other scientists or for the most valuable contributions in any other way toward the progress of the art and science of medicine, preventive medicine or surgery.

Naval and Military.

APPOINTMENTS.

The following appointments, etc., are culled from the *Commonwealth of Australia Gazette*, Nos. 65 and 69, of August 18 and September 1, 1921:

Permanent Naval Forces of the Commonwealth (Sea-Going Forces.)

Charles George Gordon Moodie, M.B., Ch.B., is appointed Surgeon-Lieutenant (on probation), with seniority in rank of 12th July, 1920, dated 12th July, 1921.

William Edward John Paradice, M.B., Ch.M., is appointed Surgeon-Lieutenant (on probation), dated 1st August, 1921.

Authority for an Officer to Accept and Retain Fees Paid to Him for Acting as Repatriation Medical Officer.—Surgeon Lieutenant-Commander William James Carr, B.A., M.R.C.S., L.R.C.P., is permitted to accept and retain for his personal use fees paid to him by the Department of Repatriation for attendance on persons employed at the Royal Australian Naval College.

Royal Australian Naval Reserve.

Promotion.—Surgeon-Lieutenant Percy Gerald Shelton, M.B., B.S., is promoted to the rank of Surgeon Lieutenant-Commander. dated 1st July, 1921.

Resignation.—The resignation of Surgeon Commander Edward Walter Morris (Retired List) of his appointment as District Naval Medical Officer, Port Adelaide, is accepted, dated 31st January, 1918.

Australian Military Forces.

First Military District.

Australian Army Medical Corps—

The provisional appointment of Captain R. Wallace is confirmed.

Colonel A. Sutton, C.B., C.M.G., V.D., relinquishes the appointment of Principal Medical Officers, 31st July. 1921.

Second Military District.

First Cavalry Division—

Lieutenant-Colonel A. H. Tebbutt, D.S.O., Australian Army Medical Corps, is appointed Assistant Director of Medical Services and to be Colonel (temporarily) whilst holding such appointment, 1st August, 1921.

First Division—

Colonel K. Smith, C.M.G., from the Unattached List, is appointed Assistant Director of Medical Services, 1st August, 1921.

Second Division—

Colonel R. J. Millard, C.M.G., C.B.E., Australian Army Medical Corps, is appointed Assistant Director of Medical Services, 1st August, 1921.

Australian Army Medical Corps—

Colonel W. L'E. Eames, C.B., V.D., relinquishes the

appointment of Principal Medical Officer, 31st July, 1921.

Captain and Honorary Major (temporary Lieutenant-Colonel) C. L. S. Macintosh, D.S.O., relinquishes and temporary rank and pay of Lieutenant-Colonel on ceasing to be employed as Medical Officer in charge of Permanent Troops, Sydney, 31st July, 1921.

The temporary rank of Captain granted to Lieutenant (provisionally) D. B. Loudon is terminated, 30th June, 1921.

Reserve of Officers—

The resignation of Honorary Captain G. W. Mason is accepted, 31st July, 1921.

The temporary rank of Major granted to Captains S. McLennan, R. L. Poulton, W. K. W. Flook and C. R. Wiburd is terminated, 30th June, 1921.

Third Military District.

Second Cavalry Division—

Colonel R. Fowler, O.B.E., Australian Army Medical Corps, is appointed Assistant Director of Medical Services, 1st August, 1921.

Third Division—

Colonel W. E. Summons, O.B.E., Australian Army Medical Corps, is appointed Assistant Director of Medical Services, 1st August, 1921.

Fourth Division—

Lieutenant-Colonel C. G. Shaw, D.S.O., Australian Army Medical Corps, is appointed Assistant Director of Medical Services and to be Colonel (temporarily) while holding such appointment, 1st August, 1921.

Australian Army Medical Corps—

Major H. B. Lee, D.S.O., M.C., is appointed from the Reserve of Officers and to be Captain with Corps seniority as from date of transfer, 2nd March, 1921. (This amends the notification respecting this officer which appeared in Executive Minute No. 164/1921, promulgated in *Commonwealth of Australia Gazette*, No. 38, of 28th April. 1921.)

Captain H. S. Jacobs is transferred to the Unattached List. 21st July, 1921.

Reserve of Officers—

The temporary rank of Major granted to Captains D. C. Worch, J. R. Porter, and F. P. Edwards is terminated, 30th June, 1921.

Honorary Captain M. L. Coutts is transferred from the Reserve of Officers, 5th Military District, 1st July, 1921.

Fourth Military District.

Australian Army Medical Corps—

Lieutenant-Colonel H. H. E. Russell, O.B.E., relinquishes the temporary appointment of Principal Medical Officer, 31st July, 1921.

Fifth Military District.

Australian Army Medical Corps—

Colonel G. W. Barber, C.B., C.M.G., D.S.O., relinquishes the appointment of Principal Medical Officer, 31st July, 1921, on appointment as Deputy Director of Medical Services, 5th Military District

Sixth Military District.

Australian Army Medical Corps—

Colonel W. W. Giblin, C.B., V.D., relinquishes the appointment of Principal Medical Officer, 31st July, 1921, on appointment as Deputy Director, Medical Services, 6th Military District.

Correspondence.

THE TREATMENT OF VENEREAL DISEASES.

Sir: The Honourable the Minister of Health put through a very comprehensive Venereal Diseases Bill some time ago, the chief aim being to take the treatment of patients out of unqualified hands and apparently, in his last public speech dealing with the work of the Government, he believed that this part anyway had been done. But what are the facts? There is more unqualified practice in venereal disease work in Sydney to-day than before the Bill became law. I find that nearly every chemist treats these cases (often with lamentable results) and in other places open clinics are being conducted by unqualified people, charging 1s. and 2s. "a treatment." From one clinic alone I have received a great number of patients suffering from complications resulting from incorrect treatment and a great many other cases were wrongly diagnosed and, of course (in spite of book reading), were wrongly treated. Considering the trouble one is put to over this Act, I think it is the duty of the Government to see that its provisions are carried out. I would like the unqualified person in Victoria to try and defy their Act!

Yours, etc.,

MEDICO.

Sydney, August 12, 1921.

Proceedings of the Australian Medical Boards.

QUEENSLAND.

The undermentioned have been registered under the provisions of *The Medical Act of 1867*, as duly qualified medical practitioners:

Brown, Charles Victor Watson, M.B., Ch.M., Univ. Syd., 1920, Isisford.

Embling, Herbert Augustus, M.B., Univ. Melb., 1882, L. Mid. R.C.P., Edin., 1883, L. Mid. F.P.S., Glasg., 1883, Brisbane.

Melville, Alexander Hugh, M.B., Ch.B., Univ. Melb., 1914, Toowong.

Todd, Arthur Charles Robert, M.B., Univ. Syd., 1914, Croydon.

Yum, Walter, M.B., Ch.M., Univ. Syd., 1921, Many Peaks.

SOUTH AUSTRALIA.

The undermentioned have been registered, under the provisions of the *Medical Act, 1880*, as duly qualified medical pactritioners:

Miller, Harold David Bowyer, M.B., B.S., Melb., 1919.

Backhouse, Thomas Clive, M.B., B.S., Melb., 1917, D.P.H., Oxford, 1920.

THE MEDICAL CURRICULUM AT THE SYDNEY UNIVERSITY.

In our issue of last week in a summarized account of the new medical curriculum at the University of Sydney, the subject of opthalmology was inadvertently omitted from the list of five special compulsory subjects which the students take in the sixth year.

Books Received.

AUTO-EROTIC PHENOMENA IN ADOLESCENCE: An Analytical Study of the Psychology and Psycho-Pathology of Onanism, Second Edition, by K. Menzies, with a Foreword by Dr. Ernest Jones; 1921. London: H. K. Lewis & Co., Ltd.; Crown 8vo., pp. 100. Price, 5s. net.

THE CLINICAL EXAMINATION OF THE NERVOUS SYSTEM, by G. H. Monrad-Krohn, M.D., M.R.C.P., M.R.C.S., with a Foreword by T. Grainger Stewart, M.D., F.R.C.P.; 1921. London: H. K. Lewis & Company, Ltd.; Crown 8vo., pp. 135, with 12 illustrations. Price, 6s. net.

A BOOK OF VERSE from Langland to Kipling, being a Supplement to the Golden Treasury, compiled by J. C. Smith; 1921. Oxford University Press; Crown 8vo., pp. 298. Price, 3s. 6d. net.

LIGHT, by Frederick Booth, with an Introduction by Whitefield Bowers, A.B., M.D.; 1921. Indiana: Published by Frederick Booth, South Bend; Demy 8vo., pp. 15.

A GUIDE TO DISEASES OF THE NOSE AND THROAT AND THEIR TREATMENT, by Charles A. Parker, F.R.C.S., and Lionel Colledge, M.B., F.R.C.S.; Second Edition; 1921. London: Edward Arnold; Demy 8vo., pp. 583, with 241 illustrations.

A TREATISE ON HYGIENE AND PUBLIC HEALTH, with Special Reference to the Tropics, by Birendra Nath Ghosh, F.R.F.P. & S. (Glasg.), and Jahar Lal Das, D.P.H., with an Introduction by Colonel Kenneth Macleod, M.D., LL.D., F.R.C.S., Fourth Edition; 1921. Calcutta: Hilton & Company; London: Simpkins & Marshall; Crown 8vo., pp. 507, with 62 illustrations. Price, 6 rupees, or 9s. 6d. net.

Medical Appointments.

Dr. G. Ridge Hills has been appointed Certifying Surgeon under the provisions of the *Workmen's Compensation Act. 1916*, within the County of Yancowinna, New South Wales, Dr. Clarence O. F. Rieger having resigned.

Dr. A. E. Newbury Browne (B.M.A.) has been appointed Government Medical Officer at Binalong, New South Wales.

Dr. A. C. Moran (B.M.A.) has been appointed Government Medical Officer at Millthorpe, New South Wales.

Dr. F. G. Middleton (B.M.A.) has been appointed Public Vaccinator at Nhill, Victoria.

Dr. J. Noel Brown (B.M.A.) has been appointed Public Vaccinator at Violet Town, Victoria.

Dr. S. R. Hecker (B.M.A.) has been appointed Public Vaccinator at Murrayville, Victoria.

Dr. Hewlett Breton (B.M.A.) has been appointed Public Vaccinator at Terang, Victoria.

The appointment of Dr. G. A. Murray (B.M.A.) as Quarantine Officer at Thursday Island has been confirmed.

Dr. E. F. O'Sullivan has been appointed District Medical Officer and Public Vaccinator at Mornington, Western Australia.

Under Section 14 of the *Workmen's Compensation Act*, 1916, Dr. George Ridge Hills has been appointed Certifying Surgeon within the County of Yancowinna.

Under the provisions of *The Insanity Act of 1884*, Dr. J. Ahearne (B.M.A.) has been appointed Official Visitor at the Reception House, Townsville.

It is announced that Dr. Nigel L. Prichard (B.M.A.) has been appointed Public Vaccinator at Euroa, Victoria.

Dr. B. R. Archer Taylor (B.M.A.) has been appointed Medical Officer of Health to the Meckering Local Board of Health, Western Australia.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xx.

Newcastle Hospital, New South Wales: Resident Pathologist.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C..

Branch.	APPOINTMENTS.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Manchester Unity Independent Order of Oddfellows. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington New Zealand.

Diary for the Month.

Sept. 13.—Tas. Branch, B.M.A..
Sept. 13.—N.S.W. Branch, B.M.A.: Executive and Finance Committee; Ethics Committee.
Sept. 14.—Melb. Pædiatric Society (Vic.).
Sept. 15.—Vic. Branch, B.M.A., Council.
Sept. 16.—Central Southern Med. Assoc. (N.S.W.).
Sept. 20.—N.S.W. Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
Sept. 21.—W. Aust. Branch, B.M.A..
Sept. 22.—Clinical Meeting at the Hospital for Sick Children, Brisbane.
Sept. 23.—Q. Branch, B.M.A., Council.
Sept. 27.—N.S.W. Branch, B.M.A.: Medical Politics Committee: Organization and Science Committee.
Sept. 28.—Vic. Branch, B.M.A.: Council.
Sept. 29.—S. Aust. Branch, B.M.A..
Sept. 30.—N.S.W. Branch, B.M.A.: Election of two members to Federal Committee.
Sept. 30.—Vic. Branch, B.M.A.: Election of two members to the Federal Committee.
Oct. 1.—Vic. Branch, B.M.A.: Election of Representatives of Divisions.
Oct. 4.—N.S.W. Branch, B.M.A., Council (Quarterly).
Oct. 5.—Vic. Branch, B.M.A..
Oct. 7.—Q. Branch, B.M.A..

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney. (Telephone: B. 4635.)